



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

PRELIMINARY ISSUE

D130-1048-241
Job Sheet 182057

Accounting Job RD17-1048-01

Approved

DAS
35
9-89



Part No: D130-1048-241

Job Qty: 1 ea

Part Name: EC130 Aft Crosstube



Part Weight: 0 lbs

Status: Scheduled

Job Created: 8/16/18

Job Tracking No:

Due Date: 8/30/18

Created By: Marie Lajeunesse

Type: R+D

Description:

Note: D130-1048-241 REV.PRELIM-A8 18.08.16 new issue DP Verify DD

Ship Via:

POSITIVE RECALL

EFFECTIVE DATE: OCT 17 2018
RELEASED DATE: 9-8-18
Priority: Medium

POSITIVE RECALL

EFFECTIVE DATE: 10-24-18
RELEASED DATE: _____
AUTH: MLS

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea	8/30/18	8/30/18	0.00	0.00	Start Up Crosstubes		DPZ 10-22
120	CNC Bend Crosstubes	1 pcs	8/30/18	8/30/18	0.00	2.00	CNC Bend Crosstube		DPZ 10-22
130	QC	1 pcs	8/30/18	8/30/18	0.00	0.00	QC15		38
131	Crosstubes	1 pcs	8/30/18	8/30/18	0.00	1.00	Crosstubes-3		DAS 10-22
132	QC	1 pcs	8/30/18	8/30/18	0.00	0.00	QC15		38
140	Crosstubes	1 pcs	8/30/18	8/30/18	0.00	3.10	Crosstubes-2		GP/DPZ/BB
150	HandFXtube	1 pcs	8/30/18	8/30/18	0.00	0.62	HandFinish5		BB
160	QC	1 pcs	8/30/18	8/30/18	0.00	0.00	QC7-3		10/11/05
170	QC	1 pcs	8/30/18	8/30/18	0.00	0.00	QC5		10/11/05
180	Outsource	1 pcs	8/30/18	8/30/18			SKY002-VC		10-11-05
190	Packaging	1 pcs	8/30/18	8/30/18	0.00	0.00	Packaging2		NOV 05 2018
200	QC	1 pcs	8/30/18	8/30/18	0.00	0.00	QC5		NOV 05 2018
210	Crosstubes	1 pcs	8/30/18	8/30/18	0.00	1.00	Crosstubes-2		10-11-02
215	QC	1 pcs	8/30/18	8/30/18	0.00	0.00	QC5		10-11-06
220	SprayPaint	1 pcs	8/30/18	8/30/18	0.00	0.25	Spray Paint		NOV 07 2018
230	QC	1 pcs	8/30/18	8/30/18	0.00	0.00	QC14		10-11-07
270	Packaging	1 pcs	8/30/18	8/30/18	0.00	0.00	Packaging3-2		NOV 08 2018
275	DC	1 pcs	8/30/18	8/30/18	0.00	0.00	DC		NOV 08 2018
280	QC21-FG	1 Ea	8/30/18	8/30/18	0.00	0.00	QC21		NOV 08 2018

Part Op 120 - 1-Bend tube (sides) as per Dwg D130-1048-241 using CNC bender program _____ and Folio FT _____ 2-Mark Descriptions: cut lines. ***BEND RAD CHECKING TOOL DT10433***

130 - ***BEND RAD CHECKING TOOL DT10433***

131 - 1-Cut tube to height as per inspection sheet. 2-Deburr 3-Scribe part # and batch # using vibrating stylus as per Dwg D130-1048-241

140 - ***** ENSURE PROPER JIG POSITIONING ***** 1-Drill saddle holes and ream hole to finish size as per Dwg D130-1048-241 section F-F & H-H ***position cuff in DT10429 LH/RH fixture. Use DT8550 as center support *** 2-Drill Rivet holes as per Dwg D130-1048-241. (transfer drilled) see sheet 2. -Drill holes section A-A using DT10436 and ream to finished size. -Drill holes section B-B using DT10437 and ream to finished size. *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D130-1048-241

150 - ***IMMEDIATELY AFTER GRINDING***

180 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order

190 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

200 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER :					

210 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** 1-Rivet Cuffs as per Dwg D130-1048-241 with Sika flex in Between tube & Cuff. B _____ EXP; _____ 2-Shave rivets as required.
 220 - *** MASK PRIOR TO PRIME AND PAINT AS PER NOTE 9 *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** 1- PRIME INSIDE AND OUTSIDE PER QSI005 4.2.1.3.3 (FLOAT SKIDTUBE PRIMER)
 BATCH: _____ 2- PAINT OUTSIDE SURFACE AS PER QSI005 4.2.2.4 (FLOAT SKIDTUBE PAINT)
 BATCH: _____
 230 - Then, Wrap in plastic bag to protect from scratches
 270 - Identify and pack for shipping as per PPP D130-1048-241
 275 - Photocopy bluefile and create labels as per PPP D130-1048-241 CHG _____

222: outsource - 20-11-20 - CC - 18-11-07

chg w/ see att. document 21 11 195

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D5610-1	Aft Crosstube	1 Ea (1 ea)	90-Start up Operation	181 616 - 5
D5610-3	Cuff	2 Ea (2 ea)	140-Crosstubes	5104655
CR3212-4-06	Rivet	44 Ea (44 ea)	210-Crosstubes	5102784

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D5610-1	1	5	0
140-Crosstubes	D5610-3	2	8	0
210-Crosstubes	CR3212-4-06	44	533	0

Part Specifications

Specifications could not be found.

Plex 9/24/18 2:39 PM Dart.lajeunesse.marie

DART
 AEROSPACE

Container No: S120234

Part: D130-1048-241

Job No: 182057

Serial No/Batch: S120234

Revision: A

Inspector:

Exp Date:

Instructions:

Date: 10/22/18

1270 Aberdeen Street
 Hawkesbury, ON K6A 1K7
 CANADA
 TEL: 1 613 632-6200
 Email: sales@dartaero.com
 www.dartaerospace.com

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

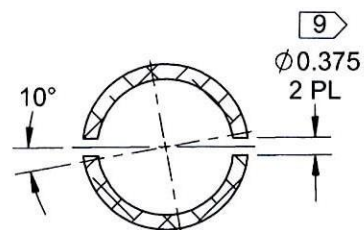
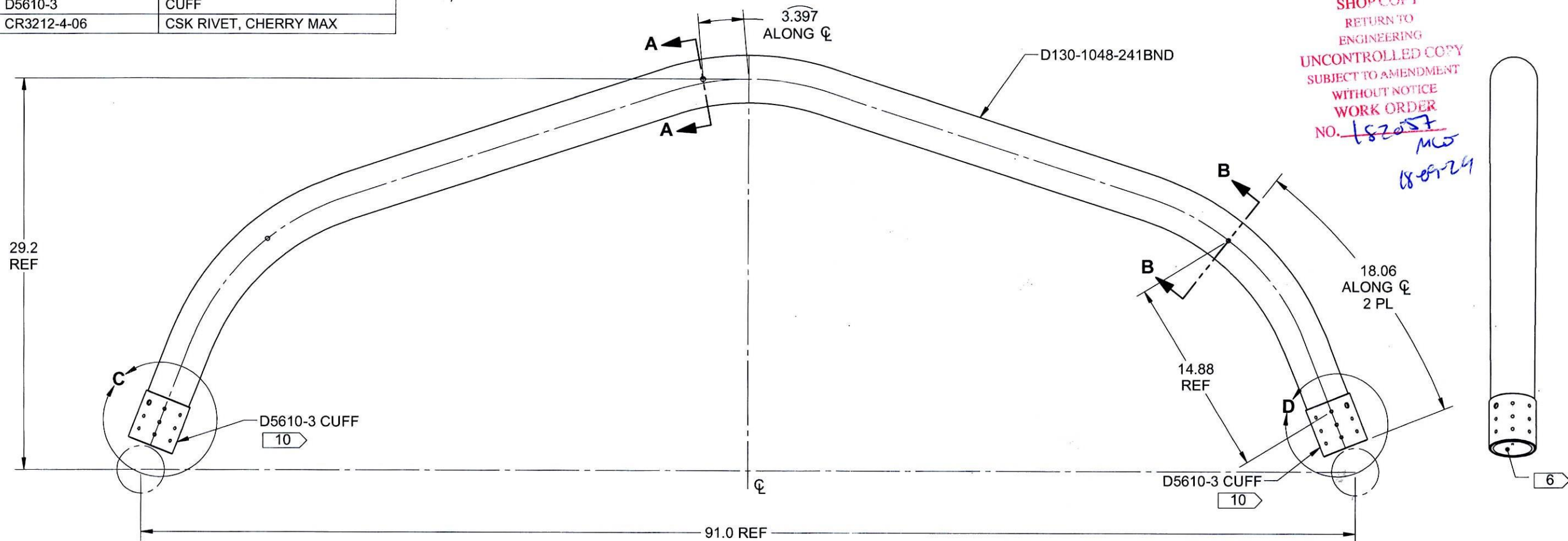


QA Closed: _____ Date: _____

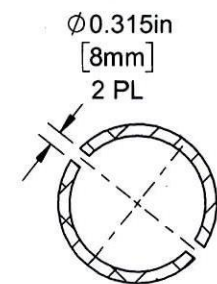
Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

QTY -241	P/N	DESCRIPTION
X	D130-1048-241	AFT X-TUBE (EC130)
1	D130-1048-241BND	AFT X-TUBE (EC130)
2	D5610-3	CUFF
44	CR3212-4-06	CSK RIVET, CHERRY MAX



SECTION A-A
SCALE 2X

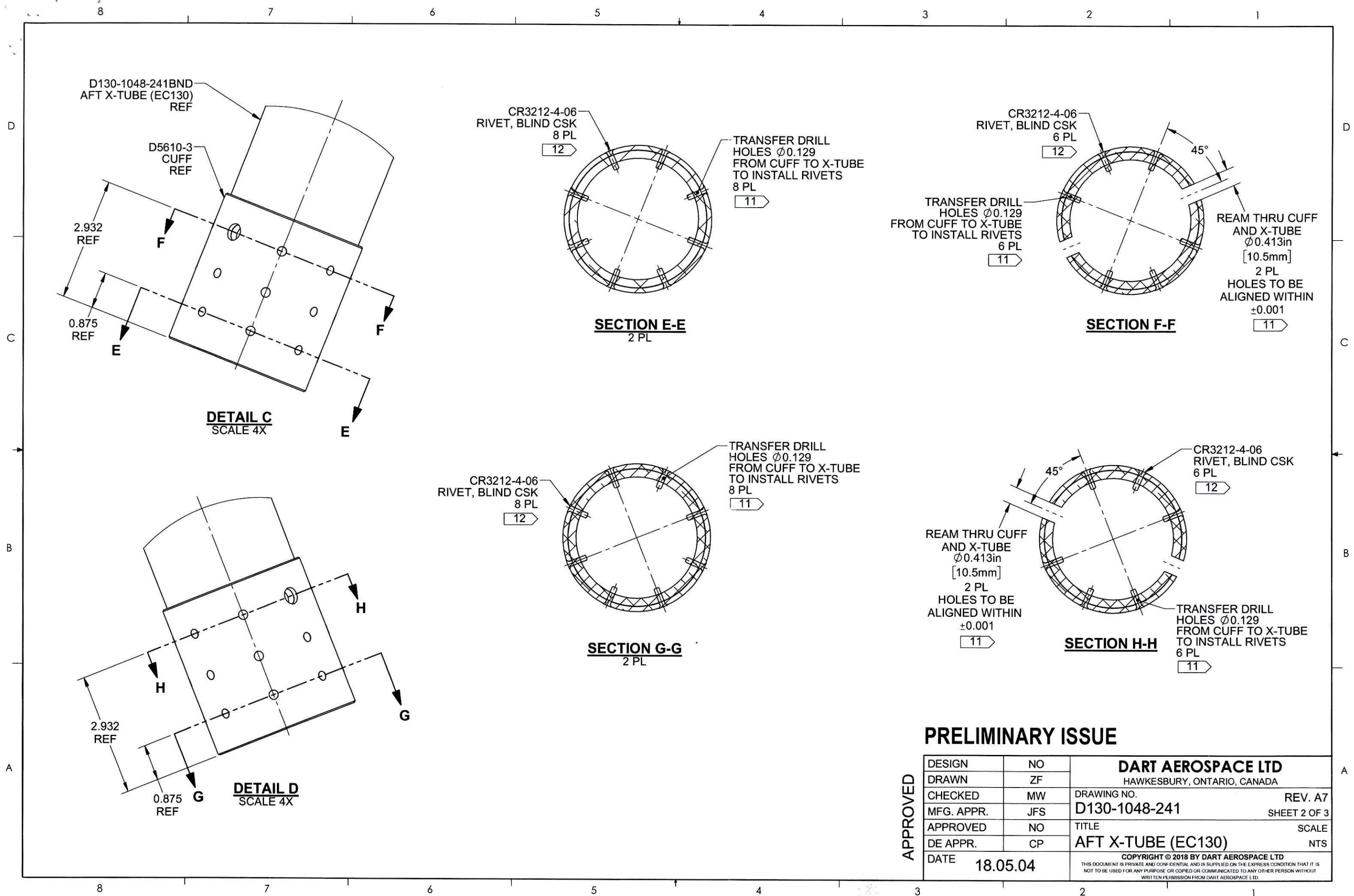


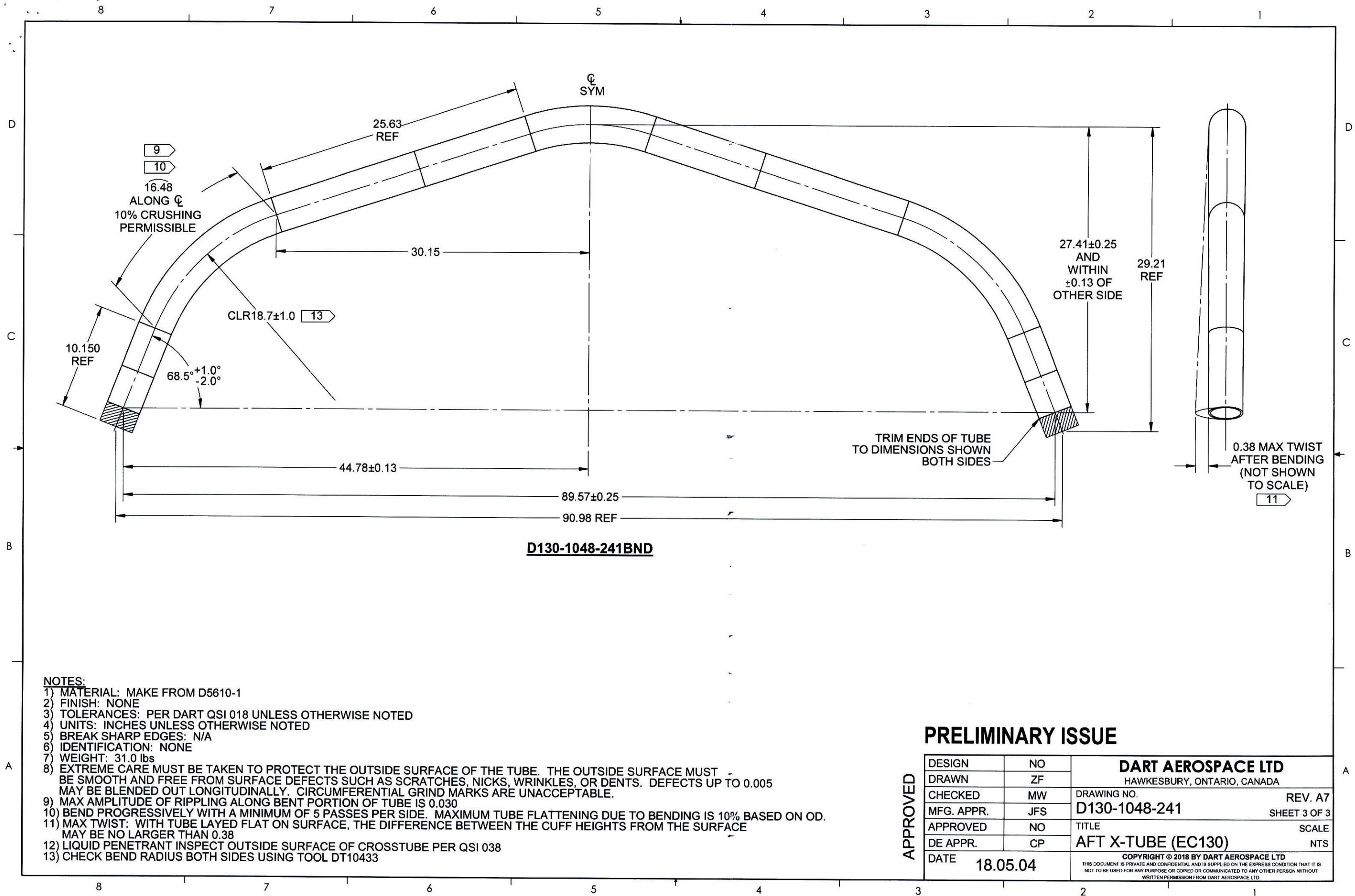
SECTION B-B
SCALE 2X, 2 PL

- NOTES:**
- 1) MATERIAL: N/A
 - 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2.1.3.3 (FLOAT SKIDTUBE PRIMER)
PAINT OUTSIDE PER DART QSI 005 4.2.2.4 (FLOAT SKIDTUBE PAINT)
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: SCRIBE DART P/N "D130-1048-241" AND S/N PER DART QSI 044 6.4 (VIBRATING STYLUS) ON INSIDE OF CUFF
 - 7) WEIGHT: 31.95lbs
 - 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, WRINKLES, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE
 - 9) MASK THESE HOLES PRIOR TO FINISH
 - 10) INSTALL D5610-3 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT WITH A LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE. SEAL EDGES OF CUFFS TO ENSURE NO GAPS.
 - 11) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.
 - 12) WET INSTALL RIVETS WITH SEALANT.

PRELIMINARY ISSUE

A	NEW ISSUE	ZF	18.05.04
REV.	DESCRIPTION	BY	DATE
DESIGN	NO	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	ZF		
CHECKED	MW	DRAWING NO.	REV. A7
MFG. APPR.	JFS	D130-1048-241	SHEET 1 OF 3
APPROVED	NO	TITLE	SCALE
DE APPR.	CP	AFT X-TUBE (EC130)	NTS
DATE	18.05.04	COPYRIGHT © 2018 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	





Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

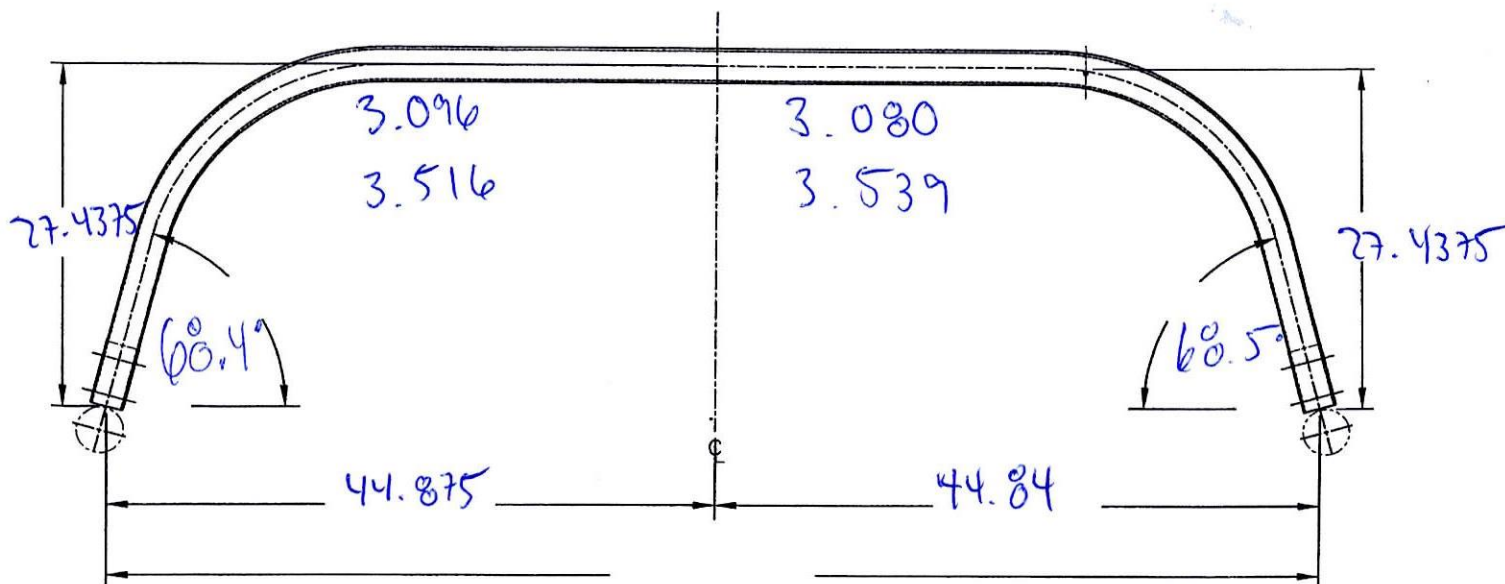
NCR No. _____

Route update only ☐

Job: <u>182057</u> Part No. <u>D130-1048-241</u>		DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☐		DEPARTMENT/PROCESS Skid-tube ☒ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier Quality ☐					
Date : <u>13-11-07</u>		Sequence #: <u>140</u>		QTY Affected : <u>(1)</u>			MRB (QSI042) <u>OK</u>		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor DAS 9 9-89 <u>13-11-07</u> QC / QA Coordinator DAS 9 9-89 <u>13-11-07</u>	
Hole at section B-B drilled off by 1". One location only				Drill additional hole in correct location. Ensure pitch of 0.945"					
Root Cause Operator ☒ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☒ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread							
		Other/Details:							

DART AEROSPACE LTD		Work Order:	182057
Description:		Part Number:	
Inspection Dwg:	Rev:	Page 1 of 1	

Required Dimension	Min	Max
Height	27.16	27.66
1/2 Span	44.65	44.91
Angle	60.5	60.5
Total Span	89.32	89.82
Bending Passes	5	10
Crushing		10'



	Side A	Side B
Bending Passes		
Crushing	6.4%	6.8%
Comments		

QC15 Inspection	18-10-22
Date	

Rev	Date	Change	Revised by	Approved
A		New Issue		
B	06.09.19	Reformat; QC level revised	KJ/JM	
C	07.02.06	Reformat	KJ/JM	
D	12.02.15	Added bending passes and crushing	KJ	
E	12.03.07	Revised comments table	KJ	

QA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION		AGAINST DEPARTMENT/PROCESS					
	Rework ☐	Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐			
	Scrap ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐			
	Use-as-is ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐			
	Suspected Unapproved ☐	Large Fab ☐	Composite ☐	Supplier ☐				

Date :	Step #:	QTY Effective :	MRB (QSI042) Approval
--------	---------	-----------------	-----------------------

Description Work Order Deviation	Disposition	Completed By
		Lead hand / Supervisor Approval Verification
		QC / QA Coordinator Approval

Root Cause				FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐		
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐		
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐		
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐		
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐		
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐		
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐		
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐		
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐		
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐		
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :					
Misidentified ☐	Past Due ☐						



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041591**

Supplier: SKY002-VC
Skyservice
6120 Midfield Road
Mississauga
ON
L5P 1B1 Canada
Phone: 905-678-5636
Fax: 905-678-5841

PO No: PO041591

PO Date: 11/5/18

Due Date: 11/9/18

Purchase Order
Revision:

Revision Date:

Ship-To Contact: Phone:

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments: please note po041568 was open an cancelfor the jobs same as po041591

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	181665	D350-748-103	AS350 / AS355 Stainless Steel Fwd Crosstube : TC STC SH06-27 Issue 2, FAA STC SR02359NY 11/03/04, EASA STC EASA.10016903 Revision 2 10/09/03, BRAZIL 2009S04-04 09/04/06 ISSUE P/O TO SKY SERVICE: _____	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$145.00/pcs	\$145.00
						1X NOV 05 2018					
2	185582	D130-1048-042	EC130 Skidtube Assembly, RH ISSUE P/O: _____ Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order NDT C OF C IS REQUIRED	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$133.75/pcs	\$133.75
						1X NOV 05 2018					
	185581			Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$133.75/pcs	\$133.75
						1X NOV 05 2018					
Sub Total:							2	0	2		\$267.50

Plex 11/5/18 1:00 PM dart.lavoie.chanta



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041591**

Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
3	185578	D130-1048-041	EC130 Skidtube Assembly, LH ISSUE P/O: _____ Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order NDT C OF C IS REQUIRED	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$133.75/pcs	\$133.75
	185580		1 X NOV 05 2018	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$133.75/pcs	\$133.75
Sub Total:							2	0	2		\$267.50
4	182064	D130-1048-141	EC130 Fwd Crosstube *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** ISSUE P/O: _____ Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order NDT C OF C IS REQUIRED	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$133.75/pcs	\$133.75
	182059		1 X NOV 05 2018	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$133.75/pcs	\$133.75
Sub Total:							2	0	2		\$267.50
5	182056	D130-1048-241	EC130 Aft Crosstube *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** ISSUE P/O: _____ Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order NDT C OF C IS REQUIRED	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$75.00/pcs	\$75.00
	182057		1 X NOV 05 2018	Firmed	-	11/9/18	1 pcs	0 pcs	1 pcs	\$75.00/pcs	\$75.00
Sub Total:							2	0	2		\$150.00
Grand Total:										\$1,097.50	

DAS
68
9-89

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Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO041591

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 11/5/18 1:00 PM dart.lavoie.chantal

**skyservice****Work Order Traveler**
Sky Service F.B.O. Inc.

10105 Ryan Avenue, Dorval, Quebec, H9P 1A2

TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO38034	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: PO041568 ✓
Descr:	PN:	S/N:	Qty: 1 <i>+P0041591</i>
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT (LIQUID PENETRANT CRACK TEST) ON THE FOLLOWING 5 CROSSTUBES AND 4 SKIDTUBES :

P/N: D130-1048-141 FWD CROSSTUBE

1- JOB SHEET# 182064 ✓ 2- JOB SHEET# 182059 ✓

P/N: D130-1048-241 AFT CROSSTUBE

3- JOB SHEET# 182056 ✓ 4- JOB SHEET# 182057 ✓

P/N: P/N: D350-748-103 FWD CROSSTUBE

5- JOB SHEET# 181665 ✓

P/N: P/N: D130-1048-041 EC130 SKIDTUBE LH

6- JOB SHEET# 185580 ✓ 7- JOB SHEET# 185578 ✓

P/N: P/N: D130-1048-042 EC130 SKIDTUBE RH

8- JOB SHEET# 185581 ✓ 9- JOB SHEET# 185582 ✓

DAS
68
9-89

Action Taken:	Date:	Initial/Stamp:				
LIQUID PENETRANT INSPECTION CARRIED OUT ON ITEMS LISTED ABOVE (ITEMS 1-9) AS PER ASTM1417M-16 -NO CRACK FOUND. PEN.(ZL-56, MPO13600), DEV.(SKD-S2, MPO11715), CLEANER(SKC-S, MPO MPO19368)	<i>2 NOV 2018</i>	DOT-APP 36 53-89				
Description	Location	P/N	Qty	Batch	S/N Off	S/N On

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:	ACA/SCA Stamp DOT-APP 36 53-89	Date: <i>2 NOV 2018</i>
Name: CHRISTIAN BRIEN		



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041620**

Supplier: ATE003-VC
Atelier Debosselage
358 Principale
Calumet
QC
J0V 1B0 Canada
Phone: 819 242 5633

PO No: PO041620

PO Date: 11/6/18

Due Date: 11/7/18

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Phone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	182056	D130-1048-241	EC130 Aft Crosstube Issue P/O to Atelier Debosselage: _____ ***MASK PRIOR TO PRIME AND PAINT AS PER NOTE 9*** *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** 1- PRIME INSIDE AND OUTSIDE PER DWG NOTE2 (FLOAT SKIDTUBE PRIMER) 2- PAINT OUTSIDE SURFACE AS PER DWG NOTE2 (FLOAT SKIDTUBE PAINT)	Firmed	-	11/7/18	1 pcs	0 pcs	1 pcs	\$125.00/pcs	\$125.00
	182057			Firmed	-	11/7/18	1 pcs	0 pcs	1 pcs	\$125.00/pcs	\$125.00
Sub Total:							2	0	2		\$250.00

Plex 11/6/18 12:51 PM dart.tsimiklis.chrisoula



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER
PO041620

Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
2	182064	D130-1048-141	EC130 Fwd Crosstube Issue P/O to Atelier Debosselage: _____ ***MASK PRIOR TO PRIME AND PAINT AS PER NOTE 9*** *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** 1- PRIME INSIDE AND OUTSIDE PER DWG NOTE2 (FLOAT SKIDTUBE PRIMER) 2- PAINT OUTSIDE SURFACE AS PER DWG NOTE2 (FLOAT SKIDTUBE PAINT)	Firmed	-	11/7/18	1 pcs	0 pcs	1 pcs	\$125.00/pcs	\$125.00
14 NOV 07 2018											
	182059			Firmed	-	11/7/18	1 pcs	0 pcs	1 pcs	\$125.00/pcs	\$125.00
Sub Total:							2	0	2		\$250.00

Grand Total: \$500.00

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

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Entered: _____ Date: _____



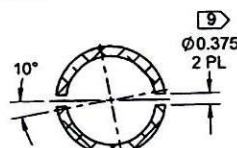
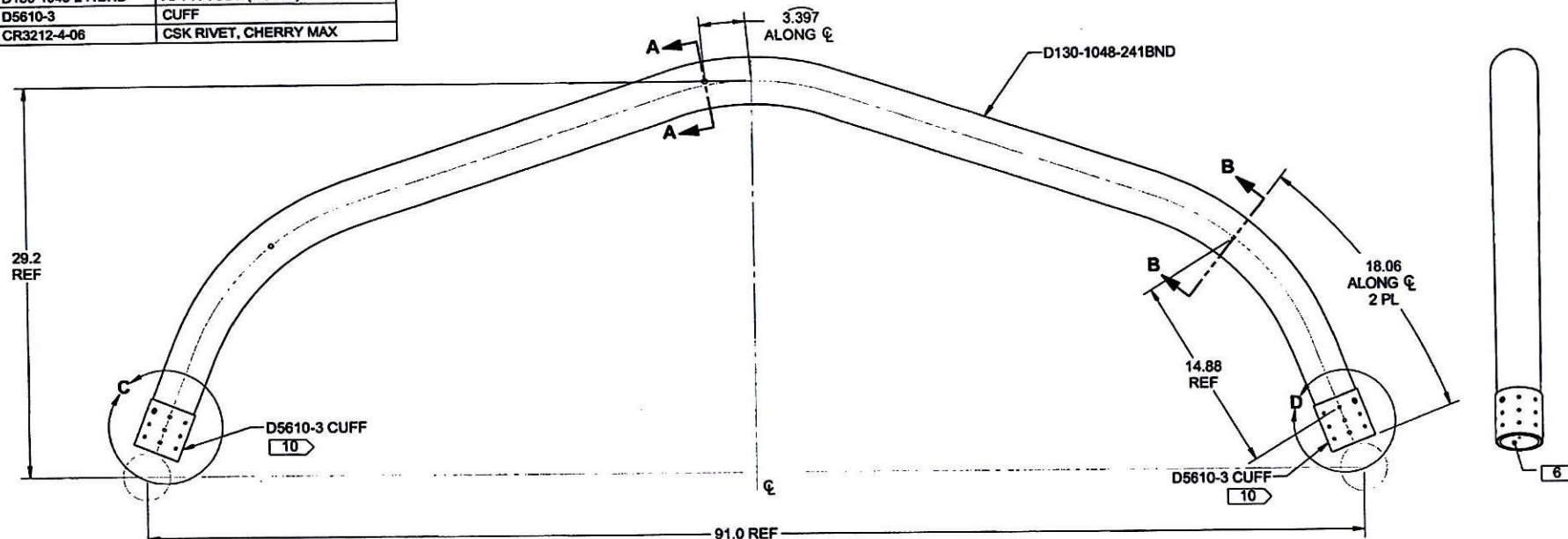
WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

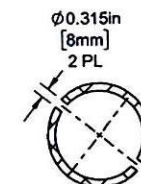
Job: <u>182052</u> Part No. <u>D130-1048-241</u>	DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier Quality ☐					
Date: <u>18/11/17</u>	Sequence #: <u>140</u>	QTY Affected: <u>1</u>	MRB (QSI042) <u>INSP 12</u> <u>18/11/17</u> Completed By <u>18/11/17</u> Lead hand / Supervisor <u>DAS 9 9-89 18-11-07</u> QC / QA Coordinator <u>DAS 9 9-89 18-11-07</u>				
Description Work Order Deviation Ø 0.375 hole was not square square on one side & bolt would not pass. Hole opened to Ø 0.386 on both sides.		Disposition Acceptable. Change in sectional strength less than 0.1%, ie hole is on neutral axis and has insignificant effect on strength.					
Root Cause Operator ☒ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Presservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐ <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; vertical-align: top;"> ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled </td> <td style="width:50%; vertical-align: top;"> ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function </td> </tr> </table>	☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled	☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function	FAULT CATEGORY <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%; vertical-align: top;"> ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up </td> <td style="width:33%; vertical-align: top;"> ☒ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread </td> </tr> </table>			☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up	☒ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread
☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled	☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function						
☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up	☒ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread						
Other/Details:							

QTY -241	P/N	DESCRIPTION
X	D130-1048-241	AFT X-TUBE (EC130)
1	D130-1048-241BND	AFT X-TUBE (EC130)
2	D5610-3	CUFF
44	CR3212-4-06	CSK RIVET, CHERRY MAX



SECTION A-A
SCALE 2X

D130-1048-241 AFT X-TUBE (EC130)



SECTION B-B
SCALE 2X, 2 PL

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2.1.3.3 (FLOAT SKIDTUBE PRIMER) PAINT OUTSIDE PER DART QSI 005 4.2.2.4 (FLOAT SKIDTUBE PAINT)
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: SCRIBE DART P/N "D130-1048-241" AND S/N PER DART QSI 044 6.4 (VIBRATING STYLUS) ON INSIDE OF CUFF
- 7) WEIGHT: 31.95lbs
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, WRINKLES, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE
- 9) MASK THESE HOLES PRIOR TO FINISH
- 10) INSTALL D5610-3 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT WITH A LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE. SEAL EDGES OF CUFFS TO ENSURE NO GAPS.
- 11) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.
- 12) WET INSTALL RIVETS WITH SEALANT.

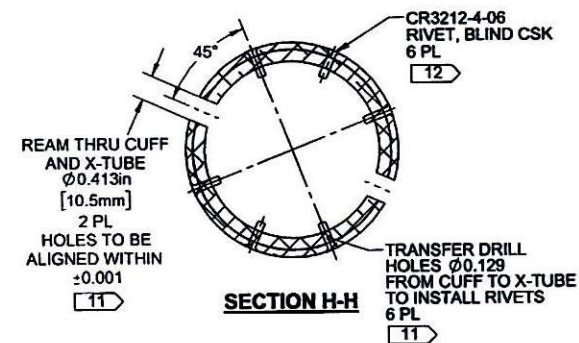
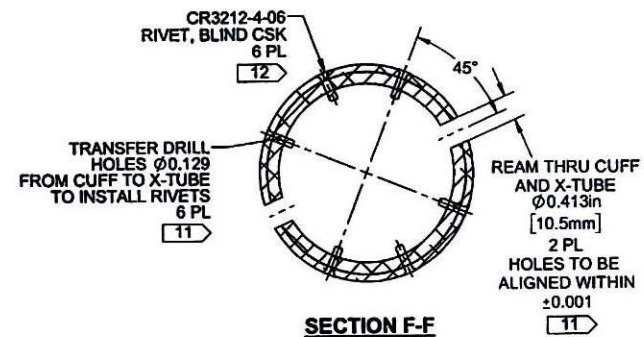
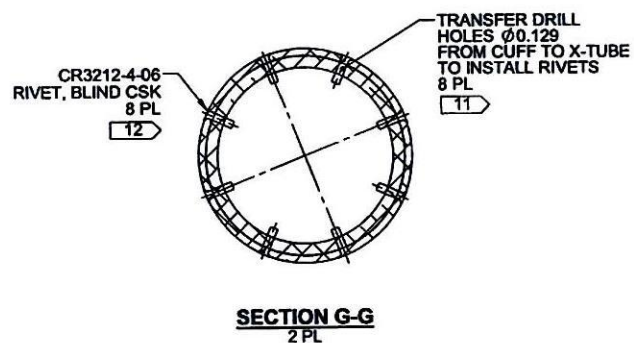
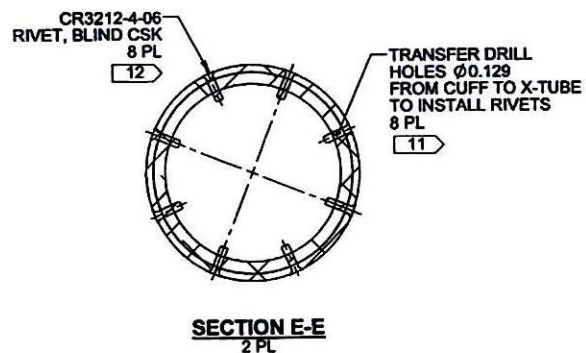
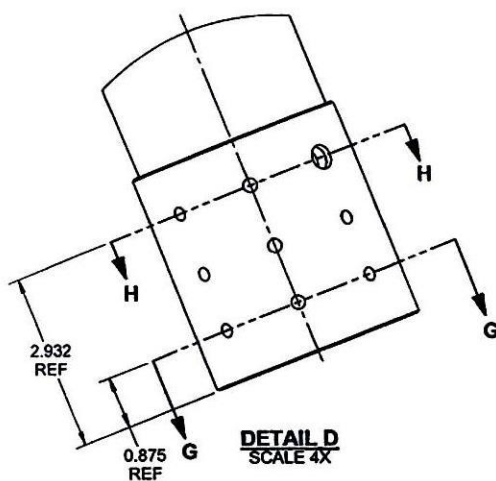
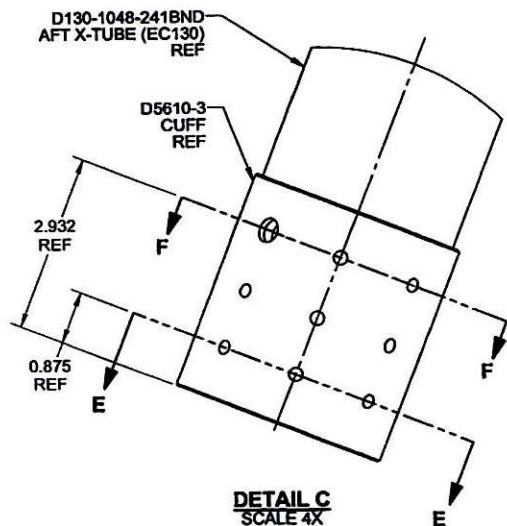
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2018 OCT 02
ZLN 18-017

APPROVED

A	NEW ISSUE	ZF	18.05.04
REV.	DESCRIPTION	BY	DATE
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APPROVED	NO		
DE APPR.	CP		
DATE	18.05.04		
		REV. A	SHEET 1 OF
		SCALE	NTS

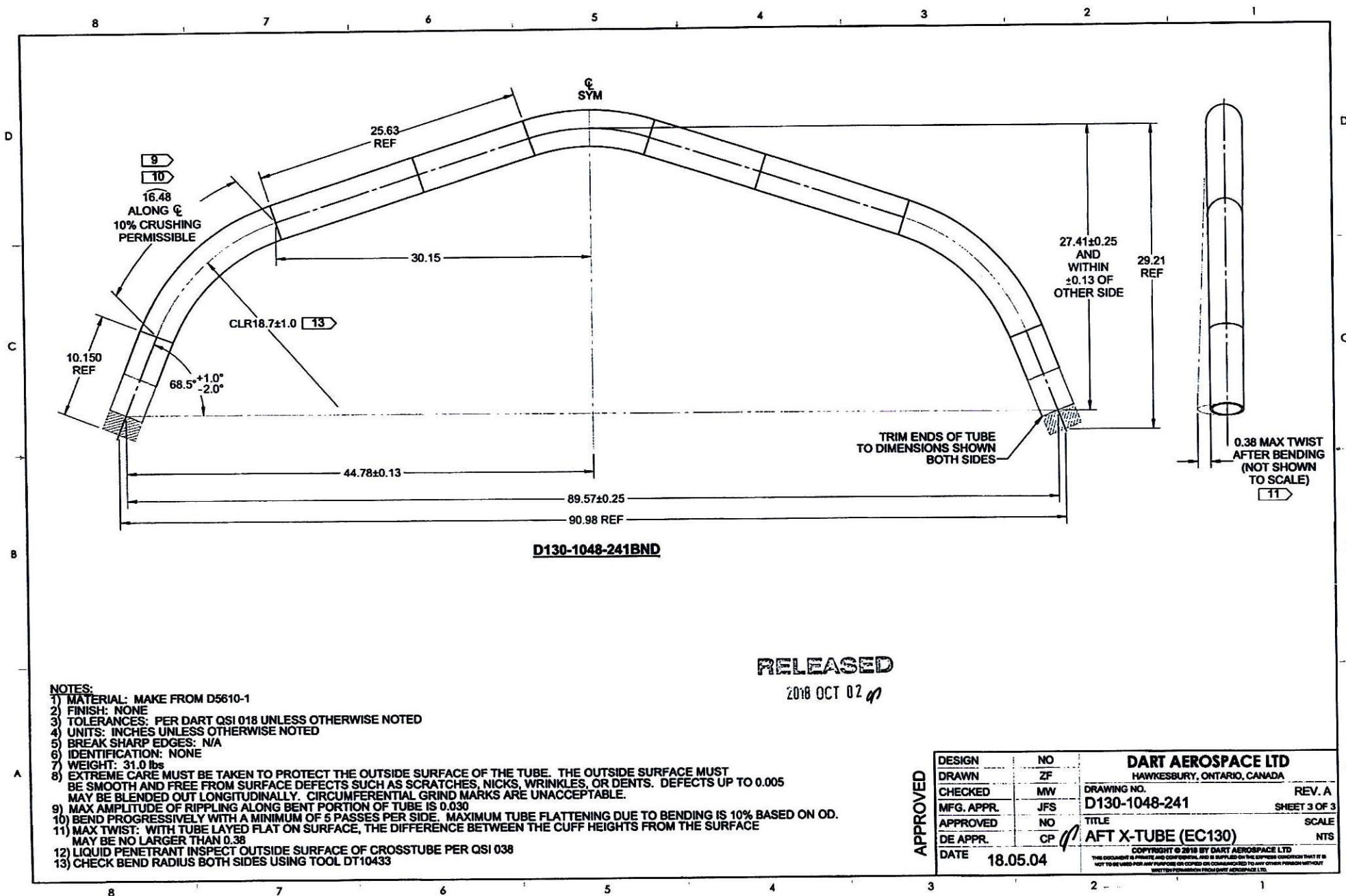
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MFG. APPR.	JFS	D130-1048-241	SHEET 2 OF 3
APPROVED	NO	TITLE	SCALE
DE APPR.	CP	AFT X-TUBE (EC130)	NTS
DATE	18.05.04	COPYRIGHT © 2018 BY DART AEROSPACE LTD THIS DOCUMENT IS PROPRIETARY AND CONFIDENTIAL. IT IS TO BE USED FOR THE PURPOSES AND CONDITIONS SPECIFIED IN THE DRAWING. NO PART OF THIS DOCUMENT IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



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PAGE 1 OF 1

Part Number: D130-1048-241

Description: AFT X-TUBE (EC130)

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